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FOREST INSECT SURVEY - EASTERN PLUMAS WORKING CIRCLE

PLUMAS NATIONAL FOREST

Season 1941

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PLUMAS NATIONAL FOREST

Season 1941

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PLUMAS NATIONAL FOREST

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INTRODUCTION

This report is prepared to present a picture of the loss conditions which occurred on the Eastern Plumas Working Circle during the season of 1941. The basis used for estimating the amount of insect caused loss during the current season consists of surveys of selected permanent sample plots and general area reconnaissance. The current forest insect survey was made by a three man survey crew from the Berkeley Forest Insect Laboratory during the period from September 22-30 inclusive.

During the past season two of the four half-section plots that have previously been used in sampling losses in the virgin areas of the Working Circle have been cut. As a result, estimates of current infestations on a few of the entomological units have been secured entirely on the basis of road reconnaissance.

GENERAL INFESTATION CONDITIONS

In general the current infestation conditions throughout the Eastern Plumas Area shows a definite decline from the level of loss for that of the preceding season. The combined loss of ponderosa and Jeffrey pine in the virgin areas during 1941 is estimated at 140 board feet per acre. This current infestation represents a decrease of approximately 40 percent from measured losses secured during 1940.

Current losses in ponderosa pine have shown a marked reduction over those of 1940 in all areas sampled by the loss survey. The Jeffrey pine beetle, Dendroctonus jeffreyi Hopk., is still quite active in Jeffrey pine throughout the west edge of the Ferris Unit and in the southern portion of the Last Chance area. However, current losses in Jeffrey pine also show a decline over those recorded in the same area during the preceding season. In many cases, currently infested Jeffrey pines were centered around trees which had become infested during 1940. The concentration of two seasons' loss in a localized area resulted in a few rather extensive group kills where nearly all trees, regardless of risk or maturity, had become infested and have died.

Within the area covered by the loss survey, the center of current insect activity is still located in the Hazard IV zone of the Ferris Entomological Unit. Of interest with respect to the infestation in

Jeffrey pine along the Willow Creek drainage is the prevalence of over-wintering insect broods in many of the trees which had been attacked during the season of 1940. Ordinarily in this area, all broods of the previous season's infestation have emerged from the dead trees by the autumn of the following year. However, during 1941, the prolonged cold during the spring months and relatively cool weather this fall prevented the complete development of some of last season's brood. It is estimated that fully one-third of the Jeffrey pines which were infested during 1940 failed to produce attacking adults during 1941. This alone would explain the decrease in the 1941 Jeffrey pine losses. The general condition of the broods carried over from 1940 seem to be unaffected by their prolonged existance as larvae, and the effect of their emergence and attack may yet become evident in the 1942 season.

LOSS CONDITIONS ON ENTOMOLOGICAL UNITS

As previously mentioned, current logging activity has left but two half section plots in the virgin areas of the Eastern Plumas Working Circle where periodical cruises are made to follow infestation trends. It would be presumptious, therefore, to attempt an estimate of current infestations for the entire Eastern Plumas Area on the basis of these two plots alone. It was necessary to supplement plot cruises by road reconnaissance for the remaining virgin areas.

Since the working circle was only recently covered by Mr. P. C. Johnson and the Hazard Inventory Field Party, it seems advisable to relate current infestation conditions within the several entomological units to the various zones of hazard established by the Hazard Inventory Project. The entomological units and zones of hazard are shown on the appended map, figure 1. A summary of loss which has been recorded on the sample plots is given in table 1. Unit losses for areas adequately sampled are given in table 2. No attempt has been made to estimate loss conditions on areas not sampled by plot cruises or road reconnaissance.

THOMPSON CREEK UNIT

The half section sample plot at Murdock Crossing which has previously been used to measure loss conditions in this unit was cutover early in 1941. The following impressions of current infestations in this area are based on a general coverage of the area from the available road system traversing this unit.

There appears to be no more than a normal endemic infestation condition in the Jeffrey pine throughout the Hazard III zone in this unit. There was no noticeable tendency of currently aggressive infestations. Losses in ponderosa pine are exceptionally low. Only an occasional infested tree was noticed in the loss picture. It is estimated that the average loss throughout the Hazard III zone during 1941 will not exceed 35 board feet per acre. Current losses in Hazard II would be expected to be somewhat lower.

LAST CHANCE UNIT

The Last Chance infestation unit is adequately sampled by survey plots. The Hazard III zone is sampled by plot P-1 and Hazard IV by plot P-2. On the basis of plot records, both zones of hazard have shown a decrease in current loss. The ratio of the current infestation over that of 1940 has been .76 and .27 for Hazard III and IV respectively. It should be noticed, however, that the decrease in current infestations still leaves a volume loss in pine of approximately 140 board feet per acre. Ponderosa losses in the area surrounding the Old Johnson Mill showed a considerable decrease during 1941. Jeffrey pine loss throughout the McClellan Creek drainage is relatively high. Decadence in the remaining stand throughout this unit appears to be quite heavy.

FERRIS UNIT

The heaviest current infestation which was measured by plot surveys and observed by supplemental reconnaissance is centered along the Willow Creek drainage in the zone of high hazard in this unit. The past and present loss in this area has been exceptionally heavy. Many of the trees which have become infested were of a definite high risk type, but in addition, many other trees of good vigor and crown appearance are being completely and successfully attacked. Many of the currently infested trees are located in the same group with trees which were killed during 1940. This infestation, all in Jeffrey pine, indicates an aggressive type, and one of epidemic proportions.

During 1940 this area was indicated as being hard hit by bark beetles. The 1941 loss is believed to be but a continuation of that activity. Samples of infestation conditions in the low and moderate hazard zones were not obtained, but it can be expected that losses in these areas would be below those mentioned above.

LITTLE LAST CHANCE UNIT

There is no indication of any but low endemic infestations in the moderate zone of hazard in this unit. Only a scattering of singly infested trees were observed from the road paralleling Frenchman Creek. No estimates of loss conditions were obtained for the Hazard II area.

FRINGE AREAS

The "fringe areas" are not included in the Eastern Plumas Working Circle and for that reason very little time was spent in securing estimates of current loss for these units. However, the absence of any but a very light infestation was particularly noticeable in the Honey Lake and Long Valley Units.

DIXIE VALLEY

During 1941 the U. S. Forest Service sold the government owned timber in the Dixie Valley Unit to the Clover Valley Lumber Company. In the timber sale contract, the Clover Valley Lumber Company agreed to cut the area on a selective basis removing not less than 25 percent of the merchantable stand in trees which were judged to be highly susceptible to insect attack.

During the course of the season nearly two-thirds of the area north of Dixie Creek was covered in the logging operation. As a result of the sanitation-salvage cut, current loss has been materially reduced from the average high loss level of the preceding years. An intensive cruise was made throughout the cut area during the course of the loss survey and as a result it is estimated that the current infestation will not exceed 12 board feet per acre. This volume of loss is contrasted to a measured loss of 242 board feet per acre in 1940 and an average seasonal kill of 130 board feet per acre since 1932.

The season's cutting by the Clover Valley Lumber Company was completed on the north side of Dixie Creek south to Rowland's Cabin. To the south of the area cut current losses are continuing on a relatively high level. Throughout all of the timbered sections to the south of Dixie Creek it is estimated that total loss during 1941 will approximate 160 board feet per acre. The infestation over the area not selectively cut is concentrated primarily in Jeffrey pine although ponderosa pine is also suffering a relatively high loss rate.

LOSSES ON CUTOVER AREAS

A summary of cutover loss records of four plots used to sample infestation conditions on cutover areas is given in table 3.

In general it can be said that current losses in cutover areas are exceptionally low. The average loss on the half section plots sampling Squaw, Clover, and Grizzley Valleys amounted to but 20 board feet per acre. This loss represents a decrease of approximately 50 percent over losses recorded on these areas in 1940.

The reserve stand in cutover areas has been estimated to range from 2,000 to 2,600 board feet per acre. Average annual increment is estimated at 1.55 percent. On this basis, net increment during the past season would approximate 55 percent of total.

Of note throughout the cutover areas was the prevalence of heavy porcupine damage to pole stands, particularly on the edges of Grizzley and Clover Valleys.

CONTROL RECOMMENDATIONS

The decreasing trend of insect activity during the current season in both ponderosa and Jeffrey pine makes it inadvisable to recommend control measures of any direct nature at this time. However, the decrease of current infestations should not be taken to indicate that insect infestations are likely to continue to subside and therefore would not be a factor in the management of these east side stands during subsequent years. The potential threat of depleting infestations throughout all of the remaining virgin areas in the Eastern Plumas Working Circle is great. An average of approximately 10 percent of the remaining virgin stands are made up of high risk trees and this material is a potential threat to a continued build up of bark beetle populations capable of producing heavy losses in the pine stands.

The salvage logging of high risk trees which was undertaken by the Clover Valley Lumber Company during the current season more fully meets the requirements for insect control in these stands than any other recommendation that can be made at present. During the next season it would be recommended that the remainder of the Dixie Valley Unit be covered on the basis of sanitation-salvage cutting. It is highly desirable that the selective cutting be extended to the boundaries of the entomological unit, thereby minimizing the possibility of contamination to the treated area by insect populations from nearby untreated areas.

A majority of the remaining timber within the Eastern Plumas Working Circle lies to the east and south of the present cutting operation near Babcock Mountain. Approximately two-thirds of the moderate and high zones of insect hazard which were established by the Hazard Inventory Project are located in these areas. By forcing subsequent logging operations into these units, a large portion of the area now suffering a high annual loss rate would be cut. As a result, the problem of insect control in the virgin pine stands would be largely met. It would be advisable, however, to make plans for the removal of high risk trees as a measure of indirect control throughout the Ferris and Last Chance Units if these areas are not to be included in utilization cuts within the near future.

Table 1

PLOT LOSSES - VIRGIN AREAS - PLUMAS NATIONAL FOREST

Plot No.	1939 Per Section Trees	1939 Per Section Vol. b.m.	1939 BM per acre	1939 Ratio '39/38	1940 Per Section Trees	1940 Per Section Vol. b.m.	1940 BM per acre	1940 Ratio '40/39	1941 (estimated) Per Section Trees	1941 (estimated) Per Section Vol. b.m.	1941 (estimated) BM per acre	1941 (estimated) Ratio '41/40
P-1	100	109,800	172	1.58	66	96,600	151	.88	57	58,400	92	.76
P-2	138	197,700	309	1.38	180	198,400	310	1.00	105	91,600	143	.27
P-3	32	88,000	137	1.64	34	113,300	177	1.29	(Cutover - April 1941)			
P-4	76	125,700	196	1.16	106	154,600	242	1.23	(Sanitation cut - August 1941)			
Dixie #5	(Plot established October 1941)								106	118,000	184	
Aver.	87	130,300	204	1.39	97	140,700	220	1.08	89	89,300	140	

Table 2

ESTIMATED UNIT LOSSES IN VIRGIN STANDS - PLUMAS NATIONAL FOREST

Unit Area	Insect Hazard Rating	Virgin Timbered Acreage	1939		1940		1941	
			Trees	M.B.M.	Trees	M.B.M.	Trees	M.B.M.
Thompson Creek	II	10,520					No estimate	
	III	8,680					250	304
Total		19,200	960	2,639	1,020	3,398		
Last Chance Cr.	III	12,030					1,072	1,098
	IV	4,450					735	641
Total		16,480	1,699	2,546	1,288	2,700	1,807	1,739
Ferris	II	3,430					No estimate	
	III	3,810					No estimate	
	IV	4,500					738	734
Total		11,740	2,256	2,981	1,944	2,839		
Little Last Chance	II	9,400					No estimate	
	III	16,840					490	589
Total		26,240	2,091	3,435	2,870	2,113		
Dixie Valley	III	3,710					614	895
	IV	7,320					35	86
Total		11,030	1,309	2,162	1,802	2,629	649	981

Units Without Estimates

Cottonwood Cr.	III	3,200
Squaw Valley	III	2,770
	IV	2,460
Clover Valley	III	860
	IV	5,990
Beckwourth	III	5,580
	IV	5,970
Long Valley	III	21,660
Honey Lake	II	19,020

Table 3

PLOT LOSSES IN CUTOVER STANDS - PLUMAS NATIONAL FOREST

Plot No.	1939 Per Section Trees	1939 Per Section Vol.b.m.	1939 B.M. acre	1939 Ratio '39/38	1940 Per Section Trees	1940 Per Section Vol.b.m.	1940 B.M. acre	1940 Ratio '40/39	1941 (estimated) Per Section Trees	1941 (estimated) Per Section Vol.b.m.	1941 (estimated) B.M. acre	1941 (estimated) Ratio '41/40
CO-23	16	6,000	9	.61	22	12,000	19	2.11	10	4,500	7	.37
CO-24	30	9,600	15	.73	54	25,200	39	2.60	31	27,800	43	1.10
P-5	52	14,300	22	.86	50	27,800	43	1.95	18	7,700	12	.28
P-3									5	1,900	3	
P-4									3	7,400	12	
Aver.	33	9,960	15	.80	42	21,670	34	2.27	13	9,860	15	

Basis for Unit Estimates,

Plumas National Forest

The correction factor used in computing the 1941 plot estimates from the 1941 plot cruise records is as follows:

Plot No.	Correction Factor
P-1	70%
P-2	75%
Dixie #5	90%
P-3	
P-4	70%
P-5	70%
CO-23	70%
CO-24	70%

The basis for estimates of unit losses are as follows:

	Hazard	1939	1940	1941
Thompson Creek	II			None
	III			Reconn.
Total		P-3	P-3	Reconn.
Last Chance Cr.	III			P-1
	IV			P-2
Total		$\frac{\text{P-1, P-2}}{2}$	$\frac{\text{P-1, P-2}}{2}$	Sum Hazard III & IV
Ferris	II			None
	III			None
	IV			$\frac{\text{P-2, Dixie \#5}}{2}$
Total		2/5P-1, 3/5P-2	Same	
Little Last Chance	II			None
	III			Reconn. P-4 '40
Total		2/3 P-4	2/3 P-4	
Dixie Valley	III			Reconn. P-4 '40
	IV			P-4, 20-ac. pl.
Total		P-4	P-4	Reconn. & plots